DOCUMENT RESUME

ED 049 270 TM 000 399

AUTHOR	Johnson, Richard W.; North, Stewart D.
TITLE	Use of Psychological Tests in an Administrative Staff Improvement Program.
INSTITUTION	Wisconsin Univ., Madison. Counseling Center.
PUB DATE	Aug 69
NOTE	18p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	*Administrator Characteristics, *Administrator Evaluation, Females, *Improvement Programs, *Job Satisfaction, Males, Principals, *Psychological Tests, School Administration, Staff Improvement
IDENTIFIERS	*Green Bay Wisconsin Public Schools

ABSTRACT

All School Administrators and Nominees for administrative positions enrolled in an Administrative Staff Improvement Program at Green Bay, Wisconsin, completed a battery of psychological tests (Miller Analogies Test, Concept Mastery Test, and Strong Vocational Interest Blank). The enrollees scored above average on the MAT compared with graduate students in educational administration. The MAT scores were highly correlated with scores on the CMT suggesting that the latter may serve as a reasonable substitute for the MAT for some testing purposes. The vocational interests for the male enrollees were most closely related to those of people employed in public administration and related social service occupations. The SVIB scores were moderately correlated with ratings of job effectiveness and occupational satisfaction for the male Administrators. The test scores were not significantly correlated with the criterion measures for the male Nominees presumably due to the unreliability of the peer ratings and the homogeneity of the occupational satisfaction scores. (Author)

Counseling Center Reports

The University of Wisconsin 415 West Gilman Street Madison, Wisconsin 53706

Editor: Richard W. Johnson

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

ED049270

Volume 3, Number 2 August, 1969

USE OF PSYCHOLOGICAL TESTS IN AN ADMINISTRATIVE STAFF IMPROVEMENT PROGRAM

Richard W. Johnson
and
Stewart D. North

Abstract

All School Administrators and Nominees for administrative positions enrolled in an Administrative Staff Improvement Program at Green Bay, Wisconsin, completed a battery of psychological tests (Miller Analogies Test, Concept Mastery Test, and Strong Vocational Interest Blank). The enrollees scored above average on the MAT compared with graduate students in educational administration. The MAT scores were highly correlated with scores on the CMT suggesting that the latter may serve as a reasonable substitute for the MAT for some testing purposes. The vocational interests for the male enrollees were most closely related to those of people employed in public administration and related social service occupations. The SVIB scores were moderately correlated with ratings of job effectiveness and occupational satisfaction for the male Administrators. The test scores were not significantly correlated with the criterion measures for the male Nominees presumably due to the unreliability of the peer ratings and the homogeneity of the occupational satisfaction scores.

TM 000 369

Use of Psychological Tests in an Administrative Staff Improvement Program

Richard W. Johnson
University of Wisconsin

and

Stewart D. North
University of Houston

The objectives of this study were to describe the psychological characteristics of educational administrators and nominees enrolled in an administrative staff improvement program and to determine the relationship between these characteristics and ratings of job effectiveness and satisfaction. Such information should be valuable for comparison with other groups or individuals and for assessing the relative meaning of the test scores. The availability of normative data describing the psychological characteristics of all educational administrators in a single school system is limited (Miner, 1968). Likewise, the predictive validity of psychological tests for the selection and classification of educational administrators has not been well established (McIntyre, 1968; Nunnery, 1959).

The Administrative Staff Improvement Program at Green Bay, Wisconsin, was developed jointly by the staff of the Department of Educational Administration of the University of Wisconsin and the central office of the Green Bay public school system. Numerous inhouse and joint meetings were held from which a three phase program evolved. Its purposes were to maintain and extend current leadership and to identify and develop leadership potential of staff throughout the system. The three phases were: (1) assessment of participants and interpretation of results, (2) exploration and analyses of individual behavior in administrative-type situations through simulation techniques, and (3) presentation and discussion of issues and practices of administration in relation to roles, functions, and organization of the Green Bay schools.

Subjects. Subjects were 45 Administrators and 35 Nominees enrolled in a Staff Improvement Program at Green Bay, Wisconsin, during the academic year 1968-69. Thirty-seven male and 9 female Administrators and 32 male and 3 female Nominees participated in the study. The median ages of the Administrators and Nominees were 44 and 37 years old, respectively.

The Administrators were the total administrative staff of the Green Bay Public Schools. Among this group there was a predominance of building unit leaders (principals). The Administrators reported a median of 11 years experience in administrative positions.

The Nominees were drawn from the teaching staff. They either were selected by their school administrators or volunteered for the program. Although all persons in the Nominee group were classified as teachers, a number previously had some slight contact with administrative responsibilities. For example, several had been teaching principals in small schools prior to joining the Green Bay staff. Some Nominees were acting as department heads. Others had a period or two each week set aside for administrative tasks, e.g., internal fund management, supervision of special programs, and other minor administrative responsibilities.

Psychological tests. The following tests were administered to each of the enrollees:

Test	Description
Miller Analogies Test (MAT), Form K[1] (Miller, 1960)	100 item, timed test measuring abstract reasoning ability. Score is number of items answered correctly in 50 minutes.

[1]One student took Form R of the MAT, an equivalent form used for students who have taken another form of the test within the preceding year.

Concept Mastery Test (CMT), Form T (Terman, 1956)	190 item, untimed test measuring vocabulary and abstract reasoning ability. Total score is corrected for guessing.
Strong Vocational Interest Blank for Men (SVIB-M), Form T399 (Strong, Campbell, Berdie, and Clark, 1966)	An empirical measure of vocational interests which yields scores on 54 occupational scales and 4 nonoccupational scales.

The tests were administered during one of the first sessions of the program. Test scores were later interpreted to each of the participants in individual counseling sessions. Implications of the data for career decisions were discussed in these sessions.

Criterion variables. Job effectiveness was measured by peer ratings. Each administrator enrolled in the program was asked to "select the five colleagues who in your judgment are the most effective administrators." Each of the nominees were asked to make similar ratings of the other nominees in the program. Lists of administrators or nominees were provided to aid the enrollees in making their judgments. Confidentiality of responses was assured. Ratings were obtained from 35 administrators and 30 nominees. Total number of times selected was tabulated for each group member.

Job satisfaction was measured by means of a modified Hoppock Job Satisfaction Blank (Hoppock, 1935). The Hoppock Job Satisfaction Blank is noted for its reliability, validity, and simplicity (Crites, 1966). The blank was modified to pertain specifically to the field of educational administration. Nominees were asked to anticipate their reactions to employment in this field.

Statistical analysis. Means, standard deviations, and intercorrelations of all variables were computed on the University of Wisconsin Control Data Corporation 3600 computer. Comparisons between male and female enrollees and between Administrators and Nominees were made

Results

The mean MAT raw score of all enrollees was 48.8 with a standard deviation of 14.5. The 25th, 50th and 75th percentile equivalents for the enrollees and graduate students in various education programs are shown in Table 1. The enrollees scored higher than graduate students in educational administration or related programs.

The mean score and standard deviation of the enrollees on the CMT are shown in Table 2. The scores are below those of graduate students or professional personnel in scientific fields, but higher than military officers.

Scores on the MAT are highly correlated with scores on the CMT ($r = .82$). The relationship is nearly as high as that obtained when equivalent forms of the same test are used.

Male enrollees did not differ from female enrollees on the MAT or CMT scores. Males and females did show significant differences, however, in their measured interests (See Table 3). Males scored significantly ($p < .05$) higher on the social service and technical supervision occupations; females scored significantly higher on the physical science and aesthetic-cultural occupations. The interest patterns for the women clearly differed from those of the men despite the fact that they were serving in or preparing for the same occupational field. Because of the variation from males in their interest patterns, the females ($N = 12$) were excluded in determining the predictive validity of the psychological tests.

The male Administrators did not differ significantly from the male Nominees on any of the psychological tests. Because their interest scores were similar, the combined profile for the 69 male Administrators and Nominees is shown in Figure 1. A primary interest pattern was

obtained in the social welfare occupations (Group V). A weak secondary pattern occurred for the technical supervision occupations (Group III). The physical science occupations (Group II) were clearly rejected. Low scores were also obtained for some of the biological science (Group I), skilled trades (Group IV), and aesthetic-cultural occuptations (Group VI).

The frequency distribution for the occupational satisfaction scores is shown in Table 4. In general, the Administrators were somewhat more satisfied than the Nominees with the field of educational administration ($t = 2.20$; $p < .05$). Most of the Administrators were "enthusiastic" in their reactions to this field. Most of the Nominees "liked" the thought of employment in this field, but were not enthusiastic.

The reliability coefficients of the peer ratings for the Administrators and Nominees were .94 and .51 (Kuder-Richardson formula 20), respectively. There was subtantially more agreement among Administrators in their judgments of peer effectiveness than among Nominees. The Administrators may have had a more realistic basis for making clear decisions in that all of them had some experience in administration in the same school system.

Job effectiveness was unrelated to occupational satisfaction for both Administrators ($r = -.10$, $p > .05$) and Nominees ($r = .03$, $p > .05$). The Administrators or the Nominees who were viewed as most capable did not necessarily express the most occupational satisfaction.

The test scores were moderately helpful in predicting peer ratings and occupational satisfaction for the male Administrators (see Table 5). The ratings of job effectiveness were associated with high scores on

various social service occupations (Psychiatrist, YMCA Secretary, Social Worker, Minister and Community Recreational Administrator), and low scores on clerical occupations (Senior Certified Public Accountant, Purchasing Agent) and skilled trades (Carpenter). Occupational satisfaction was positively correlated with scores on the social service occupations (Personnel Director, Social Worker) and scores indicating "willingness to narrow one's interests" (Specialization Level). Occupational satisfaction was inversely related to scores on scales suggesting interest in detailed work of a mechanical nature (Dentist, Printer).

The test scores did not significantly predict job effectiveness or occuppatiional satisfaction for the male Nominees. Only 3 of the 124 correlation coefficients were statistically significant at the .05 level of probability. Lack of reliability of peer ratings and limited variability of occupational satisfaction ratings for the Nominees made it difficult to obtain significant relationshipsbetween the test scores and the criterion measures.

Discussion

Based upon their MAT scores, the enrollees were well above average in abstract reasoning ability compared with first year graduate students in educational administration programs. If such a finding is representative of school systems elsewhere, it suggests that mature educators filling or seeking administrative posts are more able than graduate students preparing to enter the field.

The high correlation between the CMT and MAT indicates that the CMT may serve as a suitable alternative to the MAT when a test

of graduate school aptitude or superior ability is desired.[2] Many students would like to have some knowledge of how they may score on the MAT, a test frequently required for admission to graduate school, but may not have easy access to a testing center or may not wish to have their score filed with the Psychological Corporation. Because the CMT is untimed, it also provides a fairer index of reasoning ability for students who work slowly or block while taking psychological tests.

The Public Administrator key on the SVIB appears to be the best single index of interests for this group. This key, which measures the interests of managers in a variety of public offices, reflects the interests of the enrollees much better than the School Superintendent key. The School Superintendent key was based on the responses of school superintendents in cities of 10,000 population or over. The mixture of positions held by the enrollees apparently matches the broad field of public administration better than the more restricted field of school superintendency.

Scores in the social service (Group V) occupations of the SVIB appear to be most relevant for individuals considering the field of educational administration. Not only did the enrollees obtain their highest scores on these occupations, the scores were the most meaningfully related to the outcome variables. In general,

---

[2] The following regression equation for predicting MAT scores from CMT scores for this sample was obtained; $Y = .36X + 22.0$. This equation needs to be checked with subsequent samples.

Administrators who received high scores on social service occupations were judged by their peers as more effective and reported a greater degree of job satisfaction than Administrators with relatively low scores on these occupations.

Job effectiveness and occupational satisfaction were difficult to predict for the Nominees. The Nominees may have needed more opportunity to observe each other on the job and to gain experience themselves in educational administration before they could make very reliable judgments regarding the effectiveness of others in their own group or their own satisfaction in the field.

Additional research involving students enrolled in other administrative staff improvement training programs is needed to test the generalizability of the results found in this study.

Summary

A battery of psychological tests was used to describe Administrators and Nominees for administrative positions in one city school system and to predict relative success and satisfaction in the field of educational administration. The tests were completed by 46 Administrators (37 males, 9 females) and 35 Nominees (32 males, 3 females) participating in an Administrative Staff Improvement Program at Green Bay, Wisconsin. The enrollees scored above average on the MAT compared with graduate students in educational administration. The MAT scores were highly correlated with scores on the CMT suggesting that the latter may serve as a reasonable substitute for the MAT for some testing purposes. The vocational interests for the male enrollees were most closely related to those of people employed in

public administration and related social service occupations. Ratings of job effectiveness and occupational satisfaction for the male Administrators were moderately correlated with SVIB scores, particularly those on the social service occupational scales. The test scores were not significantly correlated with the criterion measures for the male Nominees presumably due to unreliability of peer ratings and homogeneity of occupational satisfaction scores.

REFERENCES

Crites, J.O. Test review. Journal of Counseling Psychology, 1966, 13 120-122.

Hoppock, Job satisfaction. New York: Harper, 1935.

McIntyre, K. E. Six studies on the prediction of administrative behavior. Educational Administration Quarterly, 1968, 4, 45-54.

Miller, W. S. Miller Analogies Test. New York: Psychological Corporation, 1960.

Miner, J. B. The managerial motivation of school administrators. Educational Administration Quarterly, 1968, 4, 55-71.

Nunnery, M. Y. How useful are standardized psychological tests in the selection of school administrators? Educational Administration and Supervision, 1959, 45, 349-356.

Strong, E. K., Campbell, D. P., Berdie, R. F., and Clark, K. E. Strong Vocational Interest Blank, Form T399. Stanford: Stanford University Press, 1966.

Terman, L. M. Concept Mastery Test, Form T. New York: Psychological Corporation, 1956.

TABLE 1

Percentile Equivalents for
Miller Analogies Test Raw Scores

Norm Group	Percentile 25th	50th	75th
First year education graduate students in institutions granting master's degree only [a]	27	35	47
First year graduate students in education (except administration) in institutions granting doctoral degrees [a]	32	43	55
First year graduate students in educational admimistration in institutions granting doctoral degrees [a]	29	40	51
Administrative Staff Improvement Program (Green Bay)	39	49	58

[a] Normative data obtained from Manual (Miller, 1960, p. 6).

TABLE 2

Means and Standard
Deviations for Various Groups on the
Concept Mastery Test, Form T

Group	N	Mean	SD
Graduate Students (IPAR)[a]	161	118.2	33.1
Electronic Engineers and Scientists[b]	95	94.5	37.0
Air Force Captains[c]	344	60.1	31.7
Administrative Staff Improvement Program (Green Bay)	81	74.4	33.4

[a]This group was composed of 80 medical students, 40 PhD candidates, and 41 students at various levels of graduate study tested in a personality assessment program at the University of California Institute of Personality Assessment and Research. (Terman, 1956).

[b]These subjects were tested in a study of creativity made at a navy electronics laboratory. All were college graduates and about one-third had taken some graduate work. (Terman, 1956).

[c]Subjects were Air Force Captains up for promotion. The median age of these men was 33 years. (Terman, 1956).

TABLE 3

Comparison of Interests of Male and Female Administrators and Nominees on Strong Vocational Interest Blank for Men

	Scale	Males (N = 69) Mean	Males (N = 69) SD	Females (N = 12) Mean	Females (N = 12) SD	t
I	Dentist	17.8	8.7	24.1	9.1	2.30*
	Osteopath	27.0	10.7	26.1	11.4	.26
	Veterinarian	22.0	7.9	18.6	6.5	1.43
	Physician	22.1	11.3	25.4	11.2	.94
	Psychiatrist	30.0	11.8	31.8	7.1	.51
	Psychologist	26.8	9.0	35.3	6.6	3.09*
	Biologist	22.0	11.9	29.3	7.6	2.21*
II	Architect	14.8	9.5	27.9	12.7	4.18*
	Mathematician	13.2	8.7	23.6	10.1	3.74*
	Physicist	12.6	9.4	21.1	11.2	2.80*
	Chemist	18.6	12.0	25.8	13.9	1.86
	Engineer	18.2	10.3	23.9	11.8	1.74
III	Production Mgr.	32.7	8.8	24.9	6.8	2.92*
	Army Officer	33.8	12.1	21.0	11.9	3.39*
	Air Force Officer	37.4	10.5	25.3	9.3	3.74*
IV	Carpenter	15.4	9.6	18.2	10.0	.90
	Forest Service Man	21.9	10.9	16.3	11.9	1.60
	Farmer	23.5	8.0	24.8	5.5	.53
	Math - Science Teacher	33.3	9.3	30.9	10.8	.79
	Printer	22.5	7.3	27.2	7.6	2.03*
	Policeman	22.2	9.8	15.1	11.8	2.26*
V	Personnel Director	37.7	11.0	25.2	6.8	3.81*
	Public Administrator	47.9	10.3	38.9	7.8	2.89*
	Rehabilitation Counselor	42.3	10.3	37.0	9.1	1.67
	YMCA Secretary	39.9	12.0	27.8	13.9	3.13*
	Social Worker	40.2	11.3	34.3	10.4	1.69
	Social Science Teacher	39.7	12.0	35.3	11.1	1.19
	School Superintendent	33.1	10.3	29.8	10.7	1.03
	Minister	24.4	11.5	32.8	10.7	2.37*
VI	Librarian	26.0	9.4	40.0	9.7	4.75*
	Artist	17.1	7.5	28.3	8.8	4.69*
	Musician-Performer	28.4	9.2	38.5	10.0	3.48*
	Music Teacher	30.9	9.9	37.3	12.7	1.97
VII	CPA Owner	24.5	8.9	26.6	11.7	.70
VIII	Senior CPA	25.7	10.5	25.0	14.4	.20
	Accountant	26.3	10.1	24.7	10.4	.52
	Office Worker	29.6	10.5	25.6	8.1	1.27
	Purchasing Agent	28.8	8.9	22.9	6.1	2.19*
	Banker	23.6	9.2	23.0	6.0	.20
	Pharmacist	25.2	7.5	21.1	8.7	1.71
	Mortician	29.6	7.3	28.4	6.9	.51

	Scale	Mean	SD	Mean	SD	t
IX	Sales Manager	27.1	10.5	22.1	7.3	1.59
	Real Estate Salesman	32.3	8.3	29.7	5.1	1.05
	Life Insurance Salesman	27.8	10.3	25.6	8.5	.69
X	Advertising Man	24.3	10.2	29.4	10.9	1.59
	Lawyer	28.0	7.5	28.1	7.3	.03
	Author - Journalist	24.3	6.4	33.0	7.5	4.28**
XI	Pres., MFG. Concern	21.6	7.6	21.8	9.9	.10
	Credit Manager	42.6	11.5	30.1	8.6	3.56**
	Chamber of Comm. Exec.	42.6	10.4	33.8	9.5	2.72**
	Physical Therapist	42.5	10.2	34.0	12.7	2.57*
	Computer Programmer	32.9	12.6	29.6	11.3	.87
	Business Educ. Teacher	41.4	10.7	34.1	9.1	2.24*
	Community Recr. Admin.	44.6	11.2	32.3	12.7	3.44**
	Nonoccupational Scales					
	SL	46.3	7.9	47.7	7.0	.54
	OL	60.0	5.4	59.3	7.7	.43
	MF	48.0	9.1	36.8	8.3	4.00**
	AACH	49.0	9.0	56.6	7.4	2.74**

* $p < .05$
** $p < .01$

TABLE 4

Occupational Satisfaction of
Male Administrators and Nominees

Scores		Administrators (N = 37)	Nominees (N = 32)
24-28	Enthusiastic	51.4%	31.3%
20-23	Likes it	45.9%	65.6%
16-19	Indifferent	2.7%	3.1%
≥ 15	Does not like it	-	-
	Mean Score	23.6	22.6
	Standard Deviation	2.2	1.4

TABLE 5

Correlation Coefficients Between Test Scores and Criterion Variables for Male Administrators

Predictor Variable	Peer Rating	Occup. Satis.	Predictor Variable	Peer Rating	Occup. Satis.
MAT	.17	.02	VI. Librarian	.09	.17
			Artist	-.13	-.24
CMT	.20	.12	Music Performer	.06	-.07
			Music Teacher	.19	.20
SVIB - M			VII. CPA Owner	-.01	.10
I. Dentist	.09	-.40*			
Osteopath	.26	-.22	VIII. Senior CPA	-.43**	.03
Veterinarian	.04	-.26	Accountant	-.26	.13
Physician	.29	-.28	Office Worker	-.25	.03
Psychiatrist	.47**	.15	Purchasing Agent	-.39*	-.02
Psychologist	.30	.11	Banker	-.26	-.14
Biologist	.15	-.05	Pharmacist	.02	-.19
			Mortician	.01	-.05
II. Architect	-.31	.04			
Mathematician	-.24	-.12	IX. Sales Manager	.03	.10
Physicist	-.06	-.05	Real Est. Salesman	.01	-.09
Chemist	-.05	-.05	Life Ins. Salesman	.23	-.03
Engineer	-.25	-.09			
			X. Advertising Man	.11	.10
III. Production Mgr.	-.15	.06	Lawyer	.28	-.10
Army Officer	-.08	.08	Author-Journalist	.12	-.08
Air Force Officer	-.10	.07			
			XI. Pres., Mfg. Concern	-.29	.20
IV. Carpenter	-.39*	-.06			
Forest Service Man	-.05	-.05	Supplementary Occupational Scales		
Farmer	-.24	.20	Credit Manager	.07	.24
Math-Sci. Teacher	-.17	-.13	Chamber Comm. Exec.	.27	.22
Printer	-.28	-.35*	Physical Therapist	.32	-.01
Policeman	.14	-.06	Computer Programmer	-.12	-.04
			Bus. Ed. Teacher	.02	.16
V. Personnel Director	-.02	.46**	Comm. Recr. Admin.	.38*	.21
Public Adm.	.21	.30			
Rehab. Counselor	.29	.28	Nonoccupational Scales		
YMCA Secretary	.35*	.16	Specialization Level	.18	.44**
Social Worker	.37*	.36*	Occupational Level	.26	.13
Soc. Science Tchr.	.21	.17	Masculinity-Femininity	-.21	-.17
Sch. Superintendent	.31	.15	Academic Achievement	.24	.06
Minister	.36*	.18			

Note: N = 37
*p < .05
**p < .01

Figure Caption

Fig. 1 SVIB Group Profile for Male Administrators (N = 69).